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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/014,619 | 12/10/2001 | Paul L. Frattini | 060825-0306US | 4759 |

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EXAMINER

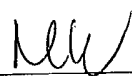
PALABRICA, RICARDO J

ART UNIT PAPER NUMBER

3641

DATE MAILED: 07/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|---------------------------------|---|
| Office Action Summary | Application No. 10/014,619 | Applicant(s) FRATTINI ET AL. | |
| | Examiner Rick Palabrica | Art Unit 3641 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-26 and 29-40 is/are pending in the application.
- 4a) Of the above claim(s) 21-26, 29 and 30 is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/10/01 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the 12/9/03 Office action has been withdrawn pursuant to 37 CFR 1.114.

Applicant's submission filed on 4/9/04, which included an Amendment and a Terminal disclaimer, has been entered. The Amendment directly amended claims 21, 23-26 and added new claims 37-40. The Examiner agrees that the Terminal Disclaimer overcomes the obviousness-type double patenting rejection in section 4 of the 12/9/03 Final Office Action.

2. Amended claims 21-26, 29 and 30 are directed to an apparatus with a housing configured for mounting to a floor. Applicant's 2/21/03 response to the 8/22/02 restriction requirement elected the embodiment as shown in Figs. 10-12. The elected embodiment shows a housing that is NOT configured for floor mounting because it does not, for example, show a base plate attached to the bottom end of the housing to facilitate said mounting configuration. Because of this lacking element, the elected embodiment is more appropriate for wall mounting (see, for example, pages 4 and 6 of the specification).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for

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prosecution on the merits. Accordingly, claims 21-26, 29 and 30 are withdrawn from consideration as being directed to a nonelected invention. See 37 CFR 1.142(b) and MPEP 821.03.

3. Applicant traversed the use of Kato et al. (U.S. 5,467,791) in the rejection of claims in the previous Office Action on the grounds that their transducers produce "planar waves" instead of the claimed "omnidirectional waves." Applicant alleges "the teaching by Kato that the waves should impact the channel box at right angles is simply further support for the fact that Kato teaches the use of transducers that produce planar waves." The Examiner disagrees.

First, nowhere in Kato et al. do they specify or limit the transducers to ones that only produce the alleged planar or uni-directional waves. In fact, neither the term "planar wave" nor "uni-directional wave" is mentioned at all in Kato et al. The disclosure and specifically the claims of Kato et al. repeatedly use the generic term, "ultrasonic transducers irradiating ultrasonic waves", e.g., see claims 1, 13 and 22, and column 6, lines 12+. They specify, for example, the frequency and power output of the ultrasonic transducer but not whether it should be "planar" or "omnidirectional" (e.g., see col. 9, lines 4+ and 32+).

Second, while the Applicant's allegation is not in the form of an affidavit or declaration, his statement nonetheless has no probative value because it represents an opinion based on his own interpretation of the disclosure of another inventor's patent.

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As such, it constitutes no more than an uncorroborative statement of the applicant (see MPEP 716.01(c)).

Third, nowhere in Kato et al. do they disclose that their invention would not work if the transducers were omnidirectional.

As to the use of omnidirectional or radial transducers in ultrasonic testing, the application of these transducers for cleaning of nuclear components, including irradiated fuel and steam generators, is old technology, as discussed in greater detail below.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 34-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims recite the limitation, "at least one of said ultrasonic transducers is adjacent to each one of said four sides of said irradiated nuclear fuel assembly."

Underlining provided. There is no support for this limitation in the disclosure. For

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example, the figures show transducers disposed at most on two opposite sides of a fuel element (e.g., see Figs. 3 and 4).

5. Claims 34-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The new matter pertains to the limitation discussed in section 4 above.

6. Claims 34-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are vague, indefinite and misdescriptive, and their metes and bounds cannot be determined for the reason given in section 4 above.

Drawings

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation discussed in section 4 above must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should

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include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 31, 32, and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (U.S. 5,467,791), in view of Walter et al. (U.S. 5,200,666).

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Kato et al. disclose the applicant's claims except for the transducer producing omnidirectional waves.

The claims are replete with statements that are either essentially method limitations or statements of intended or desired use. Examples include, "for cleaning an irradiated nuclear fuel assembly", "configured to receive an irradiated nuclear fuel assembly", "in use is stationary relative to the irradiated nuclear fuel assembly", etc. These clauses, as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference, as long as the structure of the cited references is capable of performing the intended use. See MPEP 2111-2115.

See also MPEP 2114 that states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647.

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531.

[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

The apparatus cited below is capable of being used in the same manner and for the intended or desired use as the claimed invention.

Kato et al. disclose an ultrasonic cleaning device for a BWR fuel assembly comprising an elongated housing 127, and a plurality of ultrasonic transducers 111 positioned inside said housing (e.g., see Fig. 6).

Walter et al. teach in Fig. 1 a transducer comprising an elongated rod having a length that is an integral multiple of $\frac{1}{2}$ a predetermined wavelength (see column 1, lines 54+). They further teach that only radially emitted ultrasonic radiation is desirable and their apparatus eliminates losses from longitudinal vibration (see column 1, lines 24+). They also teach that their invention can emit twice the amount of ultrasonic energy compared to other transducers with the same geometric dimensions (see column 2, lines 1+). Applicant incorporates Walter et al.'s patent and their Fig. 1 is almost identical to applicant's Fig. 2.

While Kato et al. do not specify the specific type of transducer in their apparatus, neither do they preclude the use of an omnidirectional or radially transmitting transducer. In any case, Walter et al. teaches the advantages of using an omnidirectional transducer.

Applicant traversed the Kato et al. – Walter et al. combination in the 4/9/04 Amendment on the grounds that Kato et al.'s apparatus has to be moved to remove the crud because their apparatus is "compact when compared to the length of the fuel assembly." The Examiner disagrees. First, the limitation of the housing being "stationary relative to the irradiated fuel" is a statement of intended use (see above). Second, Kato et al.'s apparatus is "movable", as Applicant himself admits. The term movable means it can be stationary. Where Kato et al. is used for cleaning short fuel

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assemblies, the apparatus need not be moved along the fuel length. There are short assemblies such as those for ABWRs, as disclosed by Takeda et al. (U.S. 5,940,461 at column 10, lines 10+) or for CANDU fuel bundles, as disclosed by Tarasuk et al. (U.S. 3,941,654 at column 3, lines 13+). Third, the claims do not limit the dimensions of the irradiated fuel assembly, and the above-mentioned short fuel assemblies are not precluded from being cleaned by the cited prior art.

One having ordinary skill in the art would have recognized that both references are in the same field of endeavor, i.e., ultrasonic cleaning. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Kato et al., by the teaching of Walter et al. to have a plurality of ultrasonic transducers producing omnidirectional ultrasonic waves having a node structure that is an approximate multiple of spacing between the fuel rods, to gain the advantages thereof (i.e., more effective ultrasonic energy generation)), because such modification is no more than the use of a well-known type and configuration of ultrasonic transducers for cleaning nuclear components, including spent fuel assemblies.

9. Claims 31, 32, and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. in view of Walter et al. Smith et al. disclose the applicant's claims except for the transducer producing ultrasonic waves having a node structure that is an approximate multiple of the spacing between the fuel rods.

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Smith et al. disclose an apparatus for removal of particulates on work pieces by ultrasonic cleaning using transducers that produce radial waves (see Fig. 3 and column 4, lines 26+). The "crud" on the surface of irradiated fuel elements is a form of "particulates."

Walter et al. teach a transducer comprising an elongated rod having a length that is an integral multiple of $\frac{1}{2}$ a predetermined wavelength (see section 8 above).

The limitation in the claims, i.e., "for cleaning irradiated nuclear fuel assemblies" is a statement of intended use and does not patentably distinguish the claimed apparatus from the cited references. See section 8 above on this matter and the subject of "short fuel assemblies."

One having ordinary skill in the art would have recognized that both references are in the same field of endeavor, i.e., ultrasonic cleaning. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Smith et al., by the teaching of Walter et al. to have a radial (a.k.a. omnidirectional) ultrasonic transducers having a node structure that is an approximate multiple of spacing between the fuel rods, to gain the advantages thereof (i.e., more effective ultrasonic energy generation)), because such modification is no more than the use of a well-known type and configuration of ultrasonic transducers for cleaning nuclear components, including spent fuel assemblies.

10. Claims 33-36 and 40 are rejected under 35 U.S.C. 103(a) as unpatentable over the Kato et al. - Walter et al. combination, as applied to claims 31, 32, and 37-39 above.

Kato et al. disclose a reflector 131 around the housing 127 to prevent leakage of ultrasonic waves (see column 10, lines 25+). As to the limitation regarding the geometry of the reflector, Kato et al. disclose a cylindrical reflector with a rectangular base.

As to the limitation regarding an inner reflector and an outer reflector with a gap there between, this is a matter of optimization within prior art conditions or through routine experimentation (see MPEP 2144.05 II.A). Alternatively, this dual reflector configuration is a mere duplication of parts that has no patentable significance unless a new and unexpected result is produced (see MPEP 2144 VI.B).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References E and F further illustrate prior art.

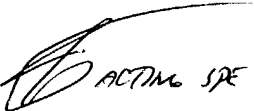
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 6:30-5:00, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Carone can be reached on 703-306-4198. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 ACTING SPE 3641

RJP
July 12, 2004